IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appeal No. _____

Application No.: 10/761,879

Filing Date: January 21, 2004

Appellants: Nafea Bishara et al.

Conf. No.: 8273

Group Art Unit: 2467

Examiner: Hicham B. Foud

Title: EFFICIENT HOST-CONTROLLER ADDRESS LEARNING IN NETWORK SWITCHES

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P.O. Box 1450
Alexandria, VA 22313-1450

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APPEAL BRIEF

This brief on appeal is submitted pursuant to the Notice of Appeal filed in the U.S. Patent and Trademark Office on March 4, 2010 and in response to the Advisory Action mailed February 16, 2010 and the Final Office Action mailed November 10, 2009.

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I. REAL PARTY IN INTEREST

The real parties in interest are Marvell International Ltd. and Marvell Israel (M.I.S.L) Ltd. by virtue of assignments recorded in the Patent and Trademark Office at Reel 014932, Frame 0610, Reel 014971, Frame 0127, Reel 014932, Frame 0608, Reel 016798, Frame 0470, and Reel 024292, Frame 0895.

II. RELATED APPEALS AND INTERFERENCES

The Assignee, the Appellants, and the undersigned do not know of any other appeals, interferences, or judicial proceedings that would directly affect or that would be directly affected by, or have a bearing on, the Board's decision in this Appeal.

III. STATUS OF THE CLAIMS

Claims 1-84 are pending and stand rejected.

Claims 1-84 stand objected to by the Examiner. The Examiner alleges that the following terms used throughout the claims - "whether", "when", "unapproved" and "approved" - creates confusion. Appellants submit that this issue [if proper] is a claim construction issue under 35 U.S.C. § 112, second paragraph, and is not an issue to be raised as an objection.

A claim may be rejected under 35 U.S.C. § 112, second paragraph, if the claim is indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. See, for example, MPEP § 706.03. The term "indefinite" means vague or not clearly defined or stated. A synonym for the term indefinite is confusing. See, for example, www.dictionary.com.

In the Final Office Action, the Examiner also objects to Claims 2, 25, 48 and 67. The Examiner alleges that the limitations of each of these claims are recited in independent claims. For example, the Examiner alleges that the limitations of Claim 2 are recited in independent Claim 1. In other words, the Examiner is alleging that Claims 2, 25, 48 and 67 are of improper dependent claim format because they do not further limit the scope of their respective independent claims. This issue falls under the fourth paragraph of 35 U.S.C. § 112 and is not a claim objection issue.

35 U.S.C. § 112, fourth paragraph states "a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed". Thus, the issue raised with respect to Claims

2, 25, 48 and 67 is a claim construction issue under 35 U.S.C. § 112, fourth paragraph, and is not an issue to be raised as an objection.

Appellants understand that under MPEP §§ 706.01 and 1201 claim objections are not appealable. However, as the Examiner appears to have mistakenly asserted 35 U.S.C. § 112, second and fourth paragraph type rejections as claim objections, the claim objections are addressed herein.

Appellants appeal the rejections of Claims 1-84.

IV. STATUS OF THE AMENDMENTS

An Amendment After Final was filed on January 11, 2010 including minor amendments to Claims 5-8, 17, 28-30, 40, 51-53, 63, 70-72 and 82. It is not clear from the Advisory Action whether the amendments have been entered by the Examiner. Appellants' representative discussed this issue with the Examiner on April 14, 2010. The Examiner stated that the amendments are entered. Thus, the Claims Appendix reflects the amendments made to Claims 5-8, 17, 28-30, 40, 51-53, 63, 70-72 and 82 in the Amendment After Final.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent Claim 1 recites an apparatus that includes network ports, a central processing unit (CPU) interface, and a controller (e.g., network switch 100, network ports 114, CPU interface 106 and controller 112 of FIG. 1 and page 5, lines 1-8 of paragraph [0017]). The controller sends, to the CPU interface, a request to approve an association between (i) one of the network ports and (ii) a source media access control (MAC) address of a packet received on the one of the network ports (e.g., step 212 of FIG. 2 and page 6, lines 7-9 of paragraph [0019]). The request is sent when no request to approve the association between the one of the network ports and the source MAC address has been sent to the CPU interface (e.g., steps 204, 206, 210 and 212 of FIG. 2 and page 6, lines 4-6 of paragraph [0018] and lines 1-9 of paragraph [0019]). The controller sends, to the CPU interface, the request when an approval for an association between the source MAC address and a different one of the network ports has been received from the CPU interface (e.g., steps 204, 210, 212, 214, 216, 218 of FIG. 2 and page 6, lines 1-5 of paragraph [0020], lines 1-6 of paragraph [0021] and lines 1-7 of paragraph [0021]).

Claim 24 recites an apparatus that includes network ports, CPU interface means for communicating with a CPU, and controller means for sending a request to the CPU interface means (e.g., network switch 100, network ports 114, CPU interface 106 and controller 112 of FIG. 1 and page 5, lines 1-8 of paragraph [0017]). The request is sent to approve an association between (i) one of the network ports and (ii) a source MAC address of a packet received on the one of the network ports (e.g., step 212 of FIG. 2 and page 6, lines 7-9 of paragraph [0019]). The

request is sent when no request to approve the association between the one of the network port ports and the source MAC address has been sent to the CPU interface means (e.g., steps 204, 206, 210 and 212 of FIG. 2 and page 6, lines 4-6 of paragraph [0018] and lines 1-9 of paragraph [0019]). The controller means sends, to the CPU interface means, the request when an approval for an association between the source MAC address and a different one of the network ports has been received from the CPU interface means (e.g., steps 204, 210, 212, 214, 216, 218 of FIG. 2 and page 6, lines 1-5 of paragraph [0020], lines 1-6 of paragraph [0021] and lines 1-7 of paragraph [0021]).

Claim 47 recites a method for a switch that includes network ports and a CPU interface (e.g., network switch 100, network ports 114, CPU interface 106 and controller 112 of FIG. 1 and page 5, lines 1-8 of paragraph [0017]). The method includes receiving, on one of the network ports, a packet including a MAC address (e.g., step 202 of FIG. 2 and page 5, lines 1-4 of paragraph [0018]). A request is sent, to the CPU interface, to approve an association between (i) the one of the network ports and (ii) the source MAC address (e.g., step 212 of FIG. 2 and page 6, lines 7-9 of paragraph [0019]). The request is sent when no request to approve the association between the one of the network ports and the source MAC address has been sent to the CPU interface (e.g., steps 204, 206, 210 and 212 of FIG. 2 and page 6, lines 4-6 of paragraph [0018] and lines 1-9 of paragraph [0019]). The request is sent, to the CPU interface, when an association between the source MAC address and a different one of the network ports has been approved (e.g., steps 204, 210, 212, 214, 216, 218 of FIG. 2 and page 6,

lines 1-5 of paragraph [0020], lines 1-6 of paragraph [0021] and lines 1-7 of paragraph [0021]).

Claim 66 recites a computer readable medium that stores a computer program embodying instructions executable by a computer for a switch comprising a network ports and a CPU interface (e.g., network switch 100, network ports 114, CPU interface 106 and controller 112 of FIG. 1 and page 5, lines 1-8 of paragraph [0017]). The computer program includes instructions for receiving, on one of the network ports, a packet comprising a source MAC address (e.g., step 202 of FIG. 2 and page 5, lines 1-4 of paragraph [0018]). The computer program also includes instructions for sending, to the CPU interface, a request to approve an association between (i) the one of the network ports and (ii) the source MAC address (e.g., step 212 of FIG. 2 and page 6, lines 7-9 of paragraph [0019]). The request is sent when no request to approve the association between the one of the network ports and the source MAC address has been sent to the CPU interface (e.g., steps 204, 206, 210 and 212 of FIG. 2 and page 6, lines 4-6 of paragraph [0018] and lines 1-9 of paragraph [0019]). The computer program further includes instructions for sending, to the CPU interface, the request when an association between the source MAC address and a different one of the network ports has been approved (e.g., steps 204, 210, 212, 214, 216, 218 of FIG. 2 and page 6, lines 1-5 of paragraph [0020], lines 1-6 of paragraph [0021] and lines 1-7 of paragraph [0021]).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Appellants seek the Board's review of:

(a) whether Claims 1-84 are objectionable, and/or unpatentable under 35 U.S.C. § 112 ¶ 2 as failing to particularly point out and distinctly claim the subject matter that Appellant regards as the invention;

(b) whether Claims 4-23, 27-46 and 50-84 are unpatentable under 35 U.S.C. § 112 ¶ 2 as failing to particularly point out and distinctly claim the subject matter that Appellant regards as the invention;

(c) whether Claims 1-7, 9-11, 15-19, 24-30, 32-34, 38-53, 55-57, 61-72, 74-76 and 80-84 are unpatentable under 35 U.S.C. § 102(b) over U.S. Patent No. 6,115,378 ("Hendel"); and

(d) whether Claims 8, 12-14, 31, 35-37, 54, 58-60, 73 and 77-79 Hendel in view of U.S. Pat. No. 5,339,449 ("Karger").

VII. ARGUMENTS

A. Objection and/or Rejection under 35 U.S.C. § 112, second paragraph

1. Claims 1-84

In the Final Office Action, the Examiner alleges that Claims 1-84 are confusing based on use of the terms "whether", "when", "unapproved" and "approved". The Examiner specifically refers to Claim 6 as an example. The Examiner is not specific as to what is confusing about Claim 6 or any other claim.

Claim 6, as amended, recites:

> "The apparatus of claim 5, wherein the controller determines whether the association exists between the one of the plurality of network ports and the source MAC address when determining whether the unapproved association exists between the one of the plurality of network ports and the source MAC address, and
>
> wherein the controller determines whether the association between the one of the plurality of network ports and the source MAC address is approved when the association exists between the one of the plurality of network ports and the source MAC address."

With respect to the first limitation of Claim 6, the controller performs two tasks to determine if a first condition A and/or a second condition B exist. The controller determines: A) whether the association exists between the one of the plurality of network ports and the source MAC address; and B) whether the unapproved association exists between the one of the plurality of network ports and the source MAC address.

The term "whether" means "if". Thus, the controller determines if A exists and if B exists. The term "when" may be defined as "in the event that". See, for example, www.dictionary.com. Thus, in the context of Claim 6, the term "when" refers to the performance of a first task in the event that a second task is performed. The controller determines if A exists when the controller determines if B exists. In other words, if B is determined, A is determined.

With respect to the second limitation, the controller performs a third determination task when the second condition B exists. Thus, when condition B exists, the controller performs the third determining task. The controller determines whether (if) the association between the one of the plurality of network

ports and the source MAC address is approved when condition B exists.

Therefore, there does not appear to be any confusion in the use of the terms "whether" and "when" in the limitations of Claim 6. Applicants have reviewed the Claims and are unsure what specifically is confusing and/or ambiguous with the language of Claims 1-84. The definition of the terms "whether" and "when" would be clear to one skilled in the art and it does not appear that these terms have been used in such an abundant manner as to render any of Claims 1-84 confusing or ambiguous.

Also, the term "approved" refers to a device that checks and provides a confirmation that an item of concern (such as an association) is accepted or permitted. See, for example, www.googleguide.com/dictionary.html and www.dictioanry.com. This definition would be clear to one skilled in the art, especially in view of the application.

Claims 2, 25, 48 and 67

The Examiner further alleges that the limitation of Claim 2 is contained in Claim 1. The Examiner alleges that a similar issue exists with respect to Claims 25, 48 and 67. Applicants respectfully disagree.

Claim 2 recites:

> "The apparatus of claim 1, wherein the controller further determines whether an association exists between one of the plurality of network ports and the source MAC address."

Applicants are unable to find this limitation in Claim 1. Claim 1 recites that the controller sends a request to approve an association. Claim 1 does not recite that the controller determines whether (if) an association exists. Although Claim 1

recites that the controller sends the request when an approval for an association between a source MAC address and a network port has been received, receiving an approval for an association is different than determining if an association exists. The term "approval", as used in Claim 1, refers to permitted communication between a port and a source with a MAC address. Communication may be permitted when an approval is received. The term "approval" does not refer to determining if an association exists.

Thus, Claim 1 does not appear to include the limitation of Claim 2. For at least similar reasons, Claims 24, 47 and 66 do not appear to include the limitations of Claims 25, 48 and 67.

Therefore, Claims 1, 24, 47 and 66 and corresponding dependent Claims 2-23, 25-46, 48-65 and 67-84 are allowable under 35 U.S.C. § 112 for at least the above reasons.

B. Rejections under 35 U.S.C. § 112, second paragraph

1. Claims 4-23, 27-46 and 50-84

In the Final Office Action, the Examiner alleges that Claims 4-19 do not reflect the steps of FIG. 2 of the application, but instead use vague and ambiguous language. The Examiner specifically refers to Claim 6, but does not specify what in Claim 6 is ambiguous or vague.

Claim 6

Appellants note that the limitations of Claims 4-12, 27-35, 50-58 and 66-77 are directed to the steps of FIG. 2. The limitations of Claims 13-16, 36-39, 59-62 and 78-81 are directed to the steps of FIG. 3. The limitations of Claims 17-19, 40-42, 63-65 and 82-84 are directed to the steps of FIG. 4. The limitations of Claims 43-46 and 66 are directed to FIG. 1.

The limitations of Claim 6 are directed to steps 204, 216 and 218 of FIG. 2. The first limitation of Claim 6 recites "the controller determines whether the association exists between the one of the plurality of network ports and the source MAC address". This first determination task is directed to step 204 of FIG. 2. In step 204, a controller determines whether a source MAC address of a packet is stored in a forwarding database. An association between a port and the source MAC address is deemed to exist when the source MAC address is stored in the forwarding database.

The first limitation of Claim 6 also recites "determining whether the unapproved association exists between the one of the plurality of network ports and the source MAC address". This second determination task is directed to steps 216 and 218 of FIG. 2. In step 216, the controller determines if an approval flag is set. When the approval flag is set, an association has not been approved. In step 218, the controller determines if the port ID of the receive port is not the same port that is stored in association with the source MAC address. If the port ID is not the same then a new unapproved association is created and stored in step 210. Thus, the first limitation of Claim 6 is directed to steps 204, 216 and 218 of FIG. 2 and would be clear to one skilled in the art.

As steps 216 and 218 are performed in certain circumstances when step 204 is performed and vice versa, the first limitation of Claim 6 is supported and is clear in view of steps 204, 216 and 218 of FIG. 2.

The second limitation of Claim 6 recites "the controller determines whether the association between the one of the plurality of network ports and the source MAC address is approved". This third determination task is performed when a

condition exists. The condition is "when the association exists between the one of the plurality of network ports and the source MAC address". The third determination task is directed to steps 216 and 218 of FIG. 2. The condition is directed to step 204.

In step 204, the controller determines if a source MAC address is stored in the forwarding database. If the source MAC address is stored in the forwarding database, then an association exists between a network port and the source MAC address. In step 216, the controller determines whether the approval flag is set. If the approval flag is set, then an unapproved association exists. If the approval flag is not set, then step 218 is performed. In step 218, if the port ID of the port that received the packet is the same port that is stored in association with the source MAC address, then the association exists and is approved. If the port ID of the receive port is not the same, then a new unapproved association is created and stored in step 210.

Thus, the second limitation and corresponding condition are directed to steps of FIG. 2 and would be clear to one skilled in the art. Appellants submit that the limitations of Claims 4-5 and 7-12, 27-35, 50-58, and 66-77 are also directed to the steps of FIG. 2.

Claim 4

In the Advisory Action, the Examiner alleges that the limitation of Claim 4 is recited in lines 8-11 of Claim 1. Lines 4-11 of Claim 1 recite:

> "a controller to send, to the CPU interface, a request… when no request to approve the association… has been sent to the CPU interface".

Claim 4 recites:

> "wherein the controller further determines whether no request to approve the association… has been sent to the CPU interface".

Thus, Claim 1 recites that the controller sends a request when no request to approve an association has been sent. Claim 4 recites that the controller determines whether no request to approve the association has been sent. Based on the limitations of Claim 1, the controller or some other device may determine whether no request to approve an association has been sent. Claim 1 clarifies that it is the controller (and not some other device) which performs this task. For this reason, Claim 4 narrows the scope of Claim 1. This would be clear to one skilled in the art.

Claim 4-19, 27-42, 50-65 and 69-84

In the Advisory Action, the Examiner again alleges that Claims 4-19, 27-42, 50-65 and 69-84 are vague and indefinite because of the ambiguity of the claim language used. The Examiner appears to allege that the claims do not recite certain steps of FIG. 2. Specifically, the Examiner appears to allege that the claims do not recite use of the flag disclosed in association with step 216 of FIG. 2 and described in paragraphs [0020]-[0022] of the application.

Appellants have not stated that use of a flag is essential. A claim "which fails to interrelate essential elements of the invention as defined by applicant(s) in the specification may be rejected under 35 U.S.C. 112, second paragraph" (see *MPEP* § 2172.01). Appellants respectfully submit that the specification is absent of any description of steps, structure or elements that are "necessary to practice the invention."

Step 216 of FIG. 2 includes determining whether a flag is set. The flag is used to indicate whether an approval for an

association between a source MAC address and a network port has been received. This indication may be provided using a flag or using some other technique available in the art.

Many of the claims are directed to determining whether an approval for an association between a source MAC address and a network port has been received, as indicated by the flag of FIG. 2. For example, this limitation is recited in independent Claims 1, 24, 47 and 66. Explicit recitation of a flag is provided in Claims 8, 12, 31, 35, 54, 58, 73 and 77. The Examiner has not provided a valid reason to incorporate the limitations of Claims 8, 12, 31, 35, 54, 58, 73 and/or 77 into independent Claims 1, 24, 47 and 66. For the above reasons, Appellants have not amended the independent Claims to recite use of a flag.

Claim 8

In the Final Office Action, the Examiner also alleges that Claim 8 lacks antecedent basis for "the entry". Claim 8 was amended in response to the Final Office Action to replace "the entry" with "an entry".

Claim 20-23

In the Final Office Action, the Examiner further alleges that Claims 20-23 are vague and indefinite because it is not known if Claims 20-23 depend on Claim 1 or are independent Claims.

According to 37 CFR 1.72(c), a dependent claim refers back to and further limits another claim. Claims 20-23 ultimately depend from and further limit Claim 1. Claims 20-23 recite an integrated circuit and a network switch that include the apparatus of Claim 1. The apparatus of Claim 1 may be implemented on various devices. Claims 20-23 narrow the device

to specifically one of an integrated circuit and a network switch. As Claims 20 and 21: refer to Claim 1; include the limitations of Claim 1; and further limit Claim 1 to be implemented on an integrated circuit or in a network switch, Claims 20 and 21 depend from and further limit Claim 1. Claims 22 and 23 depend from Claim 21.

Thus, the format of Claims 20-23 is proper. This format prevents all of the elements of a first claim (e.g., the elements of the apparatus of Claim 1) from being repeated in subsequent dependent claims and thus is efficient. Therefore, the scope of Claims 20-23 is clear and to redraft Claims 20-23 in independent form is unnecessary.

For at least the above reasons, Appellants submit that Claims 4-23, 27-46 and 50-84 are allowable under 35 U.S.C. § 112.

C. Rejection under 35 U.S.C. § 102(b) over U.S. Patent No. 6,115,378 ("Hendel")

1. Claims 1-7, 9-11, 15-19, 24-30, 32-34, 38-53, 55-57, 61-72, 74-76 and 80-84

Claim 1 recites:

> "a controller to send, to the CPU interface, a request to approve an association between one of the plurality of network ports and a source media access control (MAC) address of a packet received on the one of the plurality of network ports when no request to approve the association between the one of the plurality of network ports and the source MAC address has been sent to the CPU interface, and
>
> send, to the CPU interface, the request when an approval for an association between the source MAC address and a different one of the plurality of network ports has been received from the CPU interface."

Hendel does not show, teach, or suggest a controller that sends a request to a CPU interface to approve an association between a network port and a source MAC address of a packet when: I) no request to approve the association has been sent to a CPU interface; and II) an approval for an association between the source MAC address and a different network port has been received from the CPU interface.

Hendel discloses a subsystem 410 and a central processing system (CPS) 460. According to col. 11, line 46-col. 12, line 29 of Hendel, the subsystem 410: receives a packet from a port; forwards the packet if there is a match between the packets header and destination address in a forwarding memory 413; and floods the packet to all ports of the subsystem 410 if there is not a match. After receiving the packet from the subsystem 410, the CPS 460: checks a central memory for an address match; and copies the address match to the forwarding memory 413 if the CPS 460 finds a match.

The subsystem 410 does not send a request to approve an association between a network port and a source MAC address to the CPS 460. The subsystem 410 merely indicates to the CPS 460 that a match is not stored in the forwarding memory 413.

Also, the subsystem 410 sends the received packet to the CPS 460 when there is not a match in the forwarding memory 413. The subsystem 410 does not send the received packet when: no request to approve an association has been sent to a CPU interface (condition I); and/or an approval for an association between a source MAC address and a different network port has been received from a CPU interface (condition II). The subsystem 410 does not include logic to send a packet and/or to send a request to approve an association when either condition I

or II exists. The subsystem 410 of Hendel simply does not determine whether conditions I and/or II exist.

For at least the above reasons, the subsystem 410 of Hendel operates differently than the controller of Claim 1.

In the Advisory Action, the Examiner alleges that col. 11, lines 50-59 of Hendel disclose a controller that sends to a CPU interface a request to approve an association between a network port and a source MAC address of a packet. Appellants disagree.

In col. 11, lines 50-59, Hendel discloses initiating a learning operation when a source address of a received packet is unknown or when the packet's source address exists but is associated with a different port than a port of arrival. The learning operation includes the CPS 460 of Hendel being notified of a newly learned header of the packet, which is duplicated in the central memory. The CPS 460 does not receive or send a request to approve an association between a network port and a source MAC address of the packet. The CPS 460 is merely notified that a packet with a new header has been received.

In the Advisory Action, the Examiner alleges that col. 11, lines 50-59 of Hendel discloses a controller that sends to a CPU interface a request to approve an association between a network port and a source MAC address of a packet when the condition I exists. As stated, in col. 11, lines 50-59, Hendel simply discloses notifying the CPS 460 that a packet with a new header has been received. The CPS 460 does not receive or send a request to approve an association between a network port and a source MAC address of a packet.

Also, the CPS 460 is notified of the new packet header when received. The CPS 460 is not notified of the new packet header when no request to approve an association has been sent to a CPU

interface (condition I). This condition is not disclosed or checked in Hendel.

In the Advisory Action, the Examiner alleges that col. 7, lines 57-59 and col. 8, line 1 of Hendel disclose a controller that sends to a CPU interface a request to approve an association between a network port and a source MAC address of a packet when the condition II exists.

In col. 7, lines 57-59, Hendel discloses that a CPS 260 is not normally relied upon to forward the majority of traffic through a network element. The CPS 260 is used to add entries and data to respective memories. In col. 7, lines 65-67 to col. 8, lines 1-2, Hendel discloses that the CPS 260 sets up data path resources and enters entries in memories. There is no suggestion in these sections to send a request to approve an association between a network port and a source MAC address to a CPU interface. Adding entries and data to memories is unrelated to sending requests between devices. Also, there is no suggestion in these sections to send a request when an approval for an association between a source MAC address and a different network port has been received from a CPU interface (condition II).

Thus, Hendel fails to disclose multiple elements of Claim 1.

The Court of Appeals for the Federal Circuit has recently stated: "We thus hold that unless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot

anticipate under 35 U.S.C. §102…" *Net MoneyIN Inc. v. VeriSign Inc.*, 88 USPQ2d 1751, 1759-1760 (Fed. Cir. 2008).

Independent Claims 24, 47 and 66 are allowable for at least similar reasons as Claim 1. Dependent Claims 2-23, 25-46, 48-65 and 67-84 ultimately depend from Claims 1, 24, 47 and 66 and are therefore allowable for at least similar reasons.

Appellants' position with respect to Claims 2-84 should not be understood as implying that no other reasons for the patentability of Claims 2-84 exist. Appellants reserve the right to address these other reasons at a later date if needed.

D. Rejection under 35 U.S.C. § 103(a) over Hendel in view of U.S. Pat. No. 5,339,449 ("Karger")

1. Claims 8, 12-14, 31, 35-37, 54, 58-60, 73 and 77-79

Karger does not remedy the deficiencies of Hendel with respect to Claims 1, 24, 47 and 66. Claims 8, 12-14, 31, 35-37, 54, 58-60, 73 and 77-79 ultimately depend from Claims 1, 24, 47 and 66 and are therefore in condition for allowance for at least similar reasons.

Appellants' position with respect to Claims 8, 12-14, 31, 35-37, 54, 58-60, 73 and 77-79 should not be understood as implying that no other reasons for the patentability of Claims 8, 12-14, 31, 35-37, 54, 58-60, 73 and 77-79 exist. Appellants reserve the right to address these other reasons at a later date if needed.

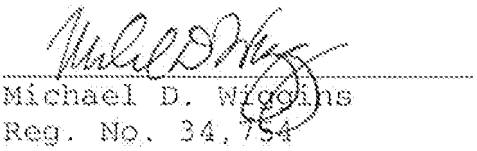
CONCLUSION

Appellants respectfully request the Board to reverse the Examiner's rejection of the claims on appeal.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By: 

Michael D. Wiggins
Reg. No. 34,754

Jeffrey J. Chapp
Reg. No. 50,579

Please address all correspondence to:

Harness, Dickey & Pierce, P.L.C.
5445 Corporate Drive
Suite 200
Troy, MI 48098
Customer No. 26703
Tel. No. (248) 641-1600
Fax. No. (248) 641-0270

MDW/JJC/ma

VIII. CLAIMS APPENDIX

This is a complete and current listing of the claims.

1. (Previously Presented) An apparatus comprising:

a plurality of network ports;

a central processing unit (CPU) interface; and

a controller to

send, to the CPU interface, a request to approve an association between one of the plurality of network ports and a source media access control (MAC) address of a packet received on the one of the plurality of network ports when no request to approve the association between the one of the plurality of network ports and the source MAC address has been sent to the CPU interface, and

send, to the CPU interface, the request when an approval for an association between the source MAC address and a different one of the plurality of network ports has been received from the CPU interface.

2. (Previously Presented) The apparatus of claim 1, wherein the controller further determines whether an association exists between one of the plurality of network ports and the source MAC address.

3. (Previously Presented) The apparatus of claim 2, further comprising a memory to store a forwarding database,

wherein the controller searches a forwarding database for the source MAC address when determining whether an association exists between one of the plurality of network ports and the source MAC address.

4. (Previously Presented) The apparatus of claim 1, wherein the controller further determines whether no request to approve the association between the one of the plurality of network ports and the source MAC address has been sent to the CPU interface.

5. (Previously Presented) The apparatus of claim 4, wherein the controller further determines whether an unapproved association exists between the one of the plurality of network ports and the source MAC address when determining whether no request to approve the association between the one of the plurality of network ports and the source MAC address has been sent to the CPU interface.

6. (Previously Presented) The apparatus of claim 5, wherein the controller determines whether the association exists between the one of the plurality of network ports and the source MAC address when determining whether the unapproved association exists between the one of the plurality of network ports and the source MAC address, and

wherein the controller determines whether the association between the one of the plurality of network ports and the source MAC address is approved when the association exists between the one of the plurality of network ports and the source MAC address.

7. (Previously Presented) The apparatus of claim 6, further comprising a memory to store a forwarding database,

wherein the controller further searches the forwarding database for an entry comprising the source MAC address when determining whether the association exists between the one of the plurality of network ports and the source MAC address.

8. (Previously Presented) The apparatus of claim 7, wherein the controller further determines whether an approval flag is set for an entry comprising the source MAC address when determining whether the association between the one of the plurality of network ports and the source MAC address is approved.

9. (Previously Presented) The apparatus of claim 1, wherein the controller further creates an unapproved association between the one of the plurality of network ports and the source MAC address.

10. (Previously Presented) The apparatus of claim 9, wherein when creating the unapproved association between the one of the plurality of network ports and the source MAC address the controller:

creates the association between the one of the plurality of network ports and the source MAC address; and

indicates that the association between the one of the plurality of network ports and the source MAC address as unapproved.

11. (Previously Presented) The apparatus of claim 10, further comprising a memory to store a forwarding database,

wherein the controller further creates an entry in the forwarding database when creating the association between the one of the plurality of network ports and the source MAC address, and

wherein the entry identifies the one of the plurality of network ports and the source MAC address.

12. (Previously Presented) The apparatus of claim 11, wherein the controller further sets an approval flag in the forwarding database for the entry when indicating that the association between the one of the plurality of network ports and the source MAC address as unapproved.

13. (Previously Presented) The apparatus of claim 12, wherein the controller further:

receives, from the CPU interface, in response to the request to approve the association between the one of the plurality of network ports and the source MAC address, an approval of the association between the one of the plurality of network ports and the source MAC address; and

clears the approval flag for the entry.

14. (Previously Presented) The apparatus of claim 12, wherein the controller further:

receives, from the CPU interface, in response to the request to approve the association between the one of the plurality of network ports and the source MAC address, a disapproval of the association between the one of the plurality of network ports and the source MAC address; and

deletes the entry.

15. (Previously Presented) The apparatus of claim 9, wherein the controller further:

receives, from the CPU interface, in response to the request to approve the association between the one of the plurality of network ports and the source MAC address, an approval of the association between the one of the plurality of network ports and the source MAC address; and

approves the unapproved association between the one of the plurality of network ports and the source MAC address.

16. (Previously Presented) The apparatus of claim 9, wherein the controller further:

receives, from the CPU interface, in response to the request to approve the association between the one of the plurality of network ports and the source MAC address, a disapproval of the association between the one of the plurality of network ports and the source MAC address; and

deletes the unapproved association between the one of the plurality of network ports and the source MAC address.

17. (Previously Presented) The apparatus of claim 1, wherein the packet further comprises a destination MAC address, and

wherein the controller further:

processes the packet according to the destination MAC address when

an association exists between the destination MAC address and a further one of the plurality of network ports, and

the association between the destination MAC address and the further one of the plurality of network ports has been approved;

processes the packet without regard to the destination MAC address when no association exists between the destination MAC address and one of the plurality of network ports; and

processes the packet without regard to the destination MAC address when

the association exists between the destination MAC address and the further one of the plurality of network ports, and

the association between the destination MAC address and the further one of the plurality of network ports has not been approved.

18. (Previously Presented) The apparatus of claim 17, wherein the controller further causes the further one of the plurality of network ports to transmit the packet when processing the packet according to the destination MAC address.

19. (Previously Presented) The apparatus of claim 17, wherein the controller further causes all of the plurality of network ports but the one of the plurality of network ports to transmit the packet when processing the packet without regard to the destination MAC address,.

20. (Original) An integrated circuit comprising the apparatus of claim 1.

21. (Original) A network switch comprising the apparatus of claim 1.

22. (Original) The network switch of claim 21, wherein the network switch is an Ethernet network switch.

23. (Previously Presented) The network switch of claim 21, further comprising a CPU that communicates with the CPU interface.

24. (Previously Presented) An apparatus comprising:

a plurality of network ports;

central processing unit (CPU) interface means for communicating with a CPU; and

controller means for sending, to the CPU interface means, a request to approve an association between one of the plurality of network ports and a source media access control (MAC) address of a packet received on the one of the network ports when no request to approve the association between the one of the plurality of network port ports and the source MAC address has been sent to the CPU interface means,

wherein the controller means sends, to the CPU interface means, the request when an approval for an association between the source MAC address and a different one of the plurality of network ports has been received from the CPU interface means.

25. (Previously Presented) The apparatus of claim 24, wherein the controller means determines whether an association exists between one of the plurality of network ports and the source MAC address.

26. (Previously Presented) The apparatus of claim 25, further comprising memory means for storing a forwarding database,

wherein the controller means searches a forwarding database for the source MAC address when determining whether an association exists between one of the plurality of network ports and the source MAC address.

27. (Previously Presented) The apparatus of claim 24, wherein the controller means determines whether no request to approve the association between the one of the plurality of network ports and the source MAC address has been sent to the CPU interface means.

28. (Previously Presented) The apparatus of claim 27, wherein the controller means determines whether an unapproved association exists between the one of the network ports and the source MAC address when determining whether no request to approve the association between the one of the plurality of network ports and the source MAC address has been sent to the CPU interface means.

29. (Previously Presented) The apparatus of claim 28, wherein when determining whether the unapproved association exists between the one of the plurality of network ports and the source MAC address, the controller means:

determines whether the association exists between the one of the plurality of network ports and the source MAC address; and

determines whether the association between the one of the plurality of network ports and the source MAC address is approved when the association exists between the one of the plurality of network ports and the source MAC address.

30. (Previously Presented) The apparatus of claim 29, further comprising memory means for storing a forwarding database,

wherein when determining whether the association exists between the one of the plurality of network ports and the source MAC address, the controller means searches the forwarding database for an entry comprising the source MAC address.

31. (Previously Presented) The apparatus of claim 30, wherein when determining whether the association between the one of the plurality of network ports and the source MAC address is approved, the controller means determines whether an approval flag is set for the entry comprising the source MAC address.

32. (Previously Presented) The apparatus of claim 24, wherein the controller means creates an unapproved association between the one of the plurality of network ports and the source MAC address.

33. (Previously Presented) The apparatus of claim 32, wherein when creating the unapproved association between the one of the plurality of network ports and the source MAC address, the controller means:

creates the association between the one of the plurality of network ports and the source MAC address; and

indicates the association between the one of the plurality of network ports and the source MAC address as unapproved.

34. (Previously Presented) The apparatus of claim 33, further comprising memory means for storing a forwarding database,

wherein when creating the association between the one of the plurality of network ports and the source MAC address, the controller means creates an entry in the forwarding database that identifies the one of the plurality of network ports and the source MAC address.

35. (Previously Presented) The apparatus of claim 34, wherein the controller means sets an approval flag in the forwarding database for the entry when indicating the association between the one of the plurality of network ports and the source MAC address as unapproved.

36. (Previously Presented) The apparatus of claim 35, wherein the controller means:

receives from the CPU interface means an approval of the association between the one of the plurality of network ports and the source MAC address in response to the request to approve the association between the one of the plurality of network ports and the source MAC address; and

clears the approval flag for the entry.

37. (Previously Presented) The apparatus of claim 35, wherein the controller means:

receives from the CPU interface means a disapproval of the association between the one of the plurality of network ports and the source MAC address in response to the request to approve the association between the one of the plurality of network ports and the source MAC address,; and

deletes the entry.

38. (Previously Presented) The apparatus of claim 32, wherein the controller means:

receives from the CPU interface means an approval of the association between the one of the plurality of network ports and the source MAC address in response to the request to approve the association between the one of the plurality of network ports and the source MAC address; and

approves the unapproved association between the one of the plurality of network ports and the source MAC address.

39. (Previously Presented) The apparatus of claim 32, wherein the controller means:

receives from the CPU interface means a disapproval of the association between the one of the plurality of network ports and the source MAC address in response to the request to approve the association between the one of the plurality of network ports and the source MAC address; and

deletes the unapproved association between the one of the plurality of network ports and the source MAC address.

40. (Previously Presented) The apparatus of claim 24, wherein the packet further comprises a destination MAC address, and

wherein the controller means:

processes the packet according to the destination MAC address when

an association exists between the destination MAC address and a further one of the plurality of network ports, and

the association between the destination MAC address and the further one of the plurality of network ports has been approved;

processes the packet without regard to the destination MAC address when no association exists between the destination MAC address and one of the plurality of network ports; and

processes the packet without regard to the destination MAC address when

the association exists between the destination MAC address and the further one of the plurality of network ports, and

the association between the destination MAC address and the further one of the plurality of network ports has not been approved.

41. (Previously Presented) The apparatus of claim 40, wherein the controller means causes the further one of the plurality of network ports to transmit the packet when processing the packet according to the destination MAC address.

42. (Previously Presented) The apparatus of claim 40, wherein the controller means causes all of the plurality of network ports but the one of the plurality of network ports to transmit the packet when processing the packet without regard to the destination MAC address.

43. (Original) An integrated circuit comprising the apparatus of claim 24.

44. (Original) A network switch comprising the apparatus of claim 24.

45. (Original) The network switch of claim 44, wherein the network switch is an Ethernet network switch.

46. (Previously Presented) The network switch of claim 44, further comprising CPU means for communicating with the CPU interface means.

47. (Previously Presented) A method for a switch comprising a plurality of network ports and a central processing unit (CPU) interface, the method comprising:

receiving, on one of the plurality of network ports, a packet comprising a source media access control (MAC) address;

sending, to the CPU interface, a request to approve an association between the one of the plurality of network ports and the source MAC address when no request to approve the association between the one of the plurality of network ports and the source MAC address has been sent to the CPU interface; and

sending, to the CPU interface, the request when an association between the source MAC address and a different one of the plurality of network ports has been approved.

48. (Previously Presented) The method of claim 47, further comprising determining whether an association exists between one of the plurality of network ports and the source MAC address.

49. (Previously Presented) The method of claim 48, wherein the determining of whether an association exists between one of the plurality of network ports and the source MAC address comprises searching a forwarding database for the source MAC address.

50. (Previously Presented) The method of claim 47, further comprising determining whether no request to approve the association between the one of the plurality of network ports and the source MAC address has been sent to the CPU interface.

51. (Previously Presented) The method of claim 50, wherein the determining of whether no request to approve the association between the one of the plurality of network ports and the source MAC address has been sent to the CPU interface comprises determining whether an unapproved association exists between the one of the plurality of network ports and the source MAC address.

52. (Previously Presented) The method of claim 51, wherein the determining of whether the unapproved association exists between the one of the plurality of network ports and the source MAC address comprises:

determining whether the association exists between the one of the plurality of network ports and the source MAC address; and

determining whether the association between the one of the plurality of network ports and the source MAC address is approved when the association exists between the one of the plurality of network ports and the source MAC address.

53. (Previously Presented) The method of claim 52, wherein the determining of whether the association exists between the one of the plurality of network ports and the source MAC address comprises searching a forwarding database for an entry comprising the source MAC address.

54. (Previously Presented) The method of claim 53, wherein the determining of whether the association between the one of the plurality of network ports and the source MAC address is approved comprises determining whether an approval flag is set for the entry comprising the source MAC address.

55. (Previously Presented) The method of claim 47, further comprising:

creating an unapproved association between the one of the plurality of network ports and the source MAC address.

56. (Previously Presented) The method of claim 55, wherein the creating of the unapproved association between the one of the plurality of network ports and the source MAC address comprises:

creating the association between the one of the plurality of network ports and the source MAC address; and

indicating the association between the one of the plurality of network ports and the source MAC address as unapproved.

57. (Previously Presented) The method of claim 56, wherein the creating of the association between the one of the plurality of network ports and the source MAC address comprises creating an entry in a forwarding database, the entry identifying the one of the plurality of network ports and the source MAC address.

58. (Previously Presented) The method of claim 57, wherein the indicating of the association between the one of the plurality of network ports and the source MAC address as unapproved comprises setting an approval flag for the entry.

59. (Previously Presented) The method of claim 58, further comprising:

receiving, from the CPU interface, in response to the request to approve the association between the one of the plurality of network ports and the source MAC address, an approval of the association between the one of the plurality of network ports and the source MAC address; and

clearing the approval flag for the entry.

60. (Previously Presented) The method of claim 58, further comprising:

receiving, from the CPU interface, in response to the request to approve the association between the one of the plurality of network ports and the source MAC address, a disapproval of the association between the one of the plurality of network ports and the source MAC address; and

deleting the entry.

61. (Previously Presented) The method of claim 55, further comprising:

receiving, from the CPU interface, in response to the request to approve the association between the one of the plurality of network ports and the source MAC address, an approval of the association between the one of the plurality of network ports and the source MAC address; and

approving the unapproved association between the one of the plurality of network ports and the source MAC address.

62. (Previously Presented) The method of claim 55, further comprising:

receiving, from the CPU interface, in response to the request to approve the association between the one of the plurality of network ports and the source MAC address, a disapproval of the association between the one of the plurality of network ports and the source MAC address; and

deleting the unapproved association between the one of the plurality of network ports and the source MAC address.

63. (Previously Presented) The method of claim 47, wherein the packet further comprises a destination MAC address, and

wherein the method further comprises:

processing the packet according to the destination MAC address when

an association exists between the destination MAC address and a further one of the plurality of network ports, and

the association between the destination MAC address and the further one of the plurality of network ports has been approved;

processing the packet without regard to the destination MAC address when no association exists between the destination MAC address and one of the plurality of network ports; and

processing the packet without regard to the destination MAC address when

the association exists between the destination MAC address and the further one of the plurality of network ports, and

the association between the destination MAC address and the further one of the plurality of network ports has not been approved.

64. (Previously Presented) The method of claim 63, wherein the processing of the packet according to the destination MAC address comprises transmitting the packet from the further one of the plurality of network ports.

65. (Previously Presented) The method of claim 63, wherein the processing of the packet without regard to the destination MAC address comprises transmitting the packet from all of the plurality of network ports but the one of the plurality of network ports.

66. (Previously Presented) A computer readable medium that stores a computer program embodying instructions executable by a computer for a switch comprising a plurality of network

ports and a central processing unit (CPU) interface, the computer program comprising instructions for:

receiving, on one of the plurality of network ports, a packet comprising a source media access control (MAC) address;

sending, to the CPU interface, a request to approve an association between the one of the plurality of network ports and the source MAC address when no request to approve the association between the one of the plurality of network ports and the source MAC address has been sent to the CPU interface; and

sending, to the CPU interface, the request when an association between the source MAC address and a different one of the plurality of network ports has been approved.

67. (Previously Presented) The computer readable medium of claim 66, further comprising instructions for determining whether an association exists between one of the plurality of network ports and the source MAC address.

68. (Previously Presented) The computer readable medium of claim 67, wherein the instructions for determining of whether an association exists between one of the plurality of network ports and the source MAC address comprises instructions for searching a forwarding database for the source MAC address.

69. (Previously Presented) The computer readable medium of claim 66, further comprising instructions for determining whether no request to approve the association between the one of the plurality of network ports and the source MAC address has been sent to the CPU interface.

70. (Previously Presented) The computer readable medium of claim 69, wherein the instructions for determining of whether no request to approve the association between the one of the plurality of network ports and the source MAC address has been sent to the CPU interface comprises instructions for determining whether an unapproved association exists between the one of the plurality of network ports and the source MAC address.

71. (Previously Presented) The computer readable medium of claim 70, wherein the instructions for determining of whether the unapproved association exists between the one of the plurality of network ports and the source MAC address comprises instructions for:

determining whether the association exists between the one of the plurality of network ports and the source MAC address; and

determining whether the association between the one of the plurality of network ports and the source MAC address is approved when the association exists between the one of the plurality of network ports and the source MAC address.

72. (Previously Presented) The computer readable medium of claim 71, wherein the instructions for determining of whether the association exists between the one of the plurality of network ports and the source MAC address comprises instructions for searching a forwarding database for an entry comprising the source MAC address.

73. (Previously Presented) The computer readable medium of claim 72, wherein the instructions for determining of whether the association between the one of the plurality of network ports and the source MAC address is approved comprises instructions for determining whether an approval flag is set for the entry comprising the source MAC address.

74. (Previously Presented) The computer readable medium of claim 66, further comprising instructions for creating an unapproved association between the one of the plurality of network ports and the source MAC address.

75. (Previously Presented) The computer readable medium of claim 74, wherein the instructions for creating of the unapproved association between the one of the plurality of network ports and the source MAC address comprises instructions for:

creating the association between the one of the plurality of network ports and the source MAC address; and

indicating the association between the one of the plurality of network ports and the source MAC address as unapproved.

76. (Previously Presented) The computer readable medium of claim 75, wherein the instructions for creating of the association between the one of the plurality of network ports and the source MAC address comprises instructions for creating an entry in a forwarding database, the entry identifying the one of the plurality of network ports and the source MAC address.

77. (Previously Presented) The computer readable medium of claim 76, wherein the instructions for indicating of the association between the one of the plurality of network ports and the source MAC address as unapproved comprises instructions for setting an approval flag for the entry.

78. (Previously Presented) The computer readable medium of claim 77, further comprising instructions for:

receiving, from the CPU interface, in response to the request to approve the association between the one of the plurality of network ports and the source MAC address, an approval of the association between the one of the plurality of network ports and the source MAC address; and

clearing the approval flag for the entry.

79. (Previously Presented) The computer readable medium of claim 77, further comprising instructions for:

receiving, from the CPU interface, in response to the request to approve the association between the one of the plurality of network ports and the source MAC address, a disapproval of the association between the one of the plurality of network ports and the source MAC address; and

deleting the entry.

80. (Previously Presented) The computer readable medium of claim 74, further comprising instructions for:

receiving, from the CPU interface, in response to the request to approve the association between the one of the plurality of network ports and the source MAC address, an approval of the association between the one of the plurality of network ports and the source MAC address; and

approving the unapproved association between the one of the plurality of network ports and the source MAC address.

81. (Previously Presented) The computer readable medium of claim 74, further comprising instructions for:

receiving, from the CPU interface, in response to the request to approve the association between the one of the plurality of network ports and the source MAC address, a disapproval of the association between the one of the plurality of network ports and the source MAC address; and

deleting the unapproved association between the one of the plurality of network ports and the source MAC address.

82. (Previously Presented) The computer readable medium of claim 66, wherein the packet further comprises a destination MAC address, and wherein the computer program further comprises instructions for:

processing the packet according to the destination MAC address when

an association exists between the destination MAC address and a further one of the plurality of network ports, and

the association between the destination MAC address and the further one of the plurality of network ports has been approved;

processing the packet without regard to the destination MAC address when no association between the destination MAC address and one of the plurality of network ports exists; and

processing the packet without regard to the destination MAC address when

the association exists between the destination MAC address and the further one of the plurality of network ports, and

the association between the destination MAC address and the further one of the plurality of network ports has not been approved.

83. (Previously Presented) The computer readable medium of claim 82, wherein the instructions for processing of the packet according to the destination MAC address comprises instructions for transmitting the packet from the further one of the plurality of network ports.

84. (Previously Presented) The computer readable medium of claim 82, wherein the instructions for processing of the packet without regard to the destination MAC address comprises instructions for transmitting the packet from all of the plurality of network ports but the one of the plurality of network ports.

IX. EVIDENCE APPENDIX

None

X. RELATED PROCEEDINGS APPENDIX

None